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ANTRAL WEB WITH GASTRIC OUTLET OBSTRUCTION (GOO) MIMICKING INFANTILE HYPERTROPHIC PYLORIC STENOSIS, A CASE REPORT

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ABSTRACT

Congenital antral web is a rare but important cause of prepyloric obstruction or GOO in neonates. It is a thin mucosal diaphragm present at 1-3cm from the pyloroduodenal junction with a 2-30mm orifice. This condition is present in nearly 1 in 100,000 births. Misdiagnosis or delayed diagnosis is common due to rarity of the condition and leads to failure to thrive. Here we present a case of 18 month old male child, who presented with postprandial vomiting since birth and failure to thrive(4.5 kg) with no loss in appetite. The baby was born to a non consanguineous couple, non diabetic, P3L2 mother, at 38 weeks of gestation with a birth weight of 1.8kg .On examination a poorly built (failure to thrive) and malnourished child with visible gastric peristalsis(VGP). Child evaluated in other hospital with upper GI endoscopy showed narrowed pylorus ? Infantile Hypertrophic Pyloric Stenosis (IHPS). Ultrasound abdomen was normal and X ray showed a dilated stomach with reduced distal small bowel gas. Patient twice diagnosed as IHPS in different hospitals. Baby underwent balloon dilatation in outside hospital. Post procedure presented to us with persisting symptoms. At our hospital Patient underwent laparotomy with a excision of the web and Heineke Mikulicz pyloroplasty. Post operative patient recovered well.

INTRODUCTION

Antral web is a rare cause of prepyloric gastric outlet obstruction [1-4]. This condition is present in nearly one in 100,000 births [3]. Antral web is a congenital anomaly characterized by the presence of a circumferential mucosal septum. It is a intra luminal perpendicular projection to the long axis of the antrum that narrows the gastrointestinal lumen in the prepyloric region . Antral web with hypertrophic pyloric stenosis or duodenal atresia is also been seen [5,6] . Only few cases of prepyloric antral stenosis due to muscular hypertrophy with mucosal web have been reported [7]. This anomaly received little medical attention as it is rare. In most cases, the presenting symptoms are non-bilious vomiting and weight loss, with no loss in appetite. It is sometimes accompanied by abdominal pain and cramping [3]. An atypical clinical manifestation can lead to misdiagnosis, and this condition often cannot be distinguished from gastric outlet diseases such as hypertrophic pyloric stenosis and peptic ulcer leading to delayed diagnosis and treatment.

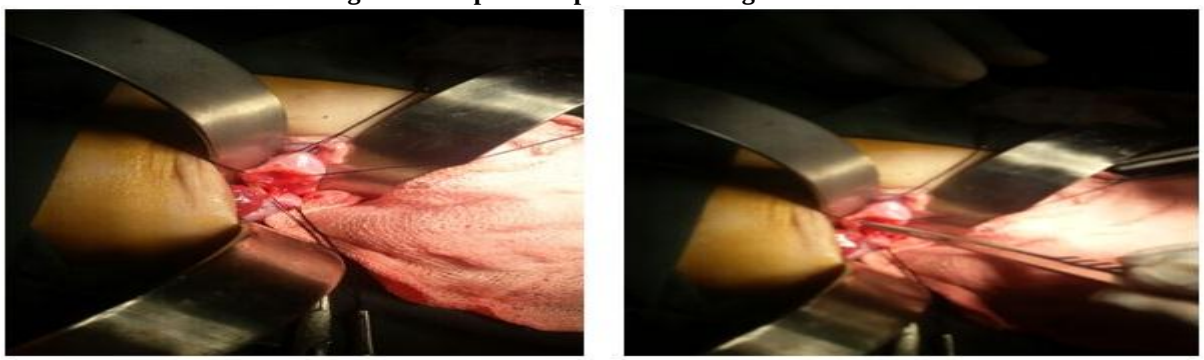
Here we report a case of 18 month old boy with a congenital antral web causing GOO whose condition was misdiagnosed twice in other hospitals as IHPS. Child was even treated with balloon dilatation with persisting symptoms.

CASE REPORT

A 18 month old male child admitted with non-bilious, postprandial, vomiting, intermittent since

birth with failure to thrive (4.5 kg) with no loss in appetite. The baby was born to a non consanguineous couple, non diabetic, P3L2 mother, at 38 weeks of gestation with a birth weight of 1.8kg. On examination a poorly built (failure to thrive) and malnourished child with visible gastric peristalsis (VGP). Baby has weight of 4.5 kg (<3 rd percentile) and height of 99 cm (< 3 rd percentile). Child had VGP with no palpable mass. The physical examination otherwise was normal. Laboratory studies showed raised blood count, and normal serum electrolytes and liver function test. Initially patient was evaluated twice in outside hospitals with barium meal and abdominal ultrasound which revealed no lesions. Gastric endoscopy showed narrowed pylorus ? IHPS. MRI brain done to rule out central causes for vomiting, it was normal. Patient was treated with balloon dilatation in outside hospital. But presented to us post procedure with persisting symptoms. Initially patient stabilized with IV antibiotics and other conservative measures in view of aspiration pneumonia and later underwent Surgery. Laparotomy confirmed the presence of an antral web with small aperture causing GOO (Fig 1). Web excision and Heineke Mikulicz pyloroplasty was performed. After surgery the patient recovered well with improvement in symptoms and no vomiting.

Fig 1. Intra operative picture showing antral web



DISCUSSION

Antral web is a thin septum, of 2 to 4mm thick located 1 to 7cm from the pylorus. It projects into the gastric lumen perpendicular to the long axis of the antrum [1,2]. The etiology of the antral web is still not understood completely. It originates from incomplete canalization of the foregut anlage around 5-6th wk of the embryonic age, as an incomplete form of membranous atresia [1-3,8,9]. During this period, the epithelial cells rapidly overgrow in the lumen, and vacuoles appear which combine to recanalize the gut. There is an excessive local endodermal proliferation early in gastric development which results in webs formation [1, 12, 15]. As per sex distribution, slight male predominance reported in the literature. In 28% of the cases, association with pyloric stenosis, Epidermolysis bullosa, and cardiac conditions (coarctation of the aorta, ventricular septal defect, and patent ductus arteriosus) have been described [14]. However, an acquired antral web in adults due to peptic diseases has also been documented [10]. The clinical presentations and age of onset vary depending on the degree of obstruction and the size of its aperture, which may range from 2 to 30mm [1-5]. Delays in diagnosis and treatment are also seen [2-5], and a small aperture (less than 1 cm) usually causes significant symptoms, as seen in our case. Barium meal study diagnoses antral web in almost 90% of cases [1-5]. A persistent, sharp band-like filling defect in the antral region is associated with spraying of barium through a central or an eccentric aperture with a "jet effect" is seen in barium study. Distension of the antrum beyond the aperture may be seen leading to the typical "double-bulb" appearance [1-5].

Diagnosis of an antral web can also be done with the help of ultrasound [3,4,9]. Chew *et al* [9] proposed four ultrasound diagnostic criteria of an antral web, namely demonstration of an echogenic diaphragm-like structure in the antral region, delay in gastric emptying, gastric dilatation, and a normal pylorus .Also the echogenic flap and eccentric aperture were clearly demonstrated on ultrasound after water-loading, but the antral chamber distal to the web remained poorly distended. Turbulence can be found at the aperture when intragastric fluid was forced to empty into the duodenal bulb during external compression of the distended stomach. This might have been due to the resistance to gastric outflow, plausibly ascribed to distal antral hypertrophy. In addition, instead of expanding the distal antral lumen, jet-like echogenic spraying distended the duodenal bulb, which indicated that the gastric fluid was being propelled through the narrowed antral lumen.

Endoscopy is helpful in confirming the presence of an antral web and to see other gastric pathologies such as peptic diseases, adhesion and a heterotopic pancreas[1,2,8,11-13]. Diagnostic criteria for endoscopy include a diaphragm with smooth mucosa and an opening of constant size, and normal peristalsis

distal to the web [11]. Once the antral web aperture was bypassed the endoscope would be navigated through the distal antral lumen to the duodenal loop without difficulty.

In this 18 month-old boy, the ultrasonogram and upper GI endoscopy done outside hospital were suggestive of hypertrophic pyloric stenosis which usually affects infants at the 2-4 wk of life, we realized that these finding may be related to the eccentric location of the aperture of the antral web with distal antral muscular hypertrophy leading to luminal narrowing mimicking pyloric stenosis. In this small child, no evidence of peptic disease could be found on endoscopy. However, distal antral hypertrophy with poor peristalsis was seen. Thickening of the distal antral wall may be due to reactive changes from the high-pressure inflow generated by the stomach through the aperture of the antral web.

As per management guidelines, surgery remains the primary treatment method for a symptomatic antral web with gastric outlet obstruction[1-5]. Most antral webs can be managed with a simple incision to excise the web [1,2]. Endoscopic transaction of web or laser lysis of the web is also described with good results[12,13]. However, for surgical planning it's important for accurate preoperative differentiation of an antral web with prepyloric stenosis from hypertrophic pylorus stenosis [5]. IHPS can be managed by pyloromyotomy[5, 6]. However, in our patient, in addition to resection of the web, antropyloroplasty was also done. With adequate distal antral lumen re-expansion, this small child had good recovery with no vomiting postoperatively.

CONCLUSION

In summary, this report illustrates that an antral web with narrow aperture with GOO may mimick hypertrophic pyloric stenosis .Accurate diagnosis often delayed even if the patient undergoes endoscopy or UGI series, because antral web is a very rare entity as described above. Patients often have been treated for ulcer or pyloric spasm or IHPS. Asymptomatic antral web become worse from peptic ulcer with edema of antrum.[16,17]. So we have to keep in mind that Antral web with aperture with GOO may mimick , Infantile Hypertrophic Pyloric Stenosis leading to delay in diagnosis, which may end up with persisting symptoms with FTT.

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

STATEMENT OF HUMAN AND ANIMAL RIGHTS

All procedures performed in human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors.

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